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I HAVE taken the liberty of substituting the word "cancer" for carcinoma in the discussion of this topic. The dual use of the term carcinoma, first, to designate a tumor of a definite histological structure, and second, a general term, including all malignant neoplasms, leads to endless confusion of ideas in the minds of many students. The advantages of having a general term devoid of ambiguity is apparent, and until we find one more suitable, the term "cancer" is a convenient one for all growths which present the following characteristics, as formulated by Dr. Snow:²

(1) Resistance to all known medicinal agents. [Under this head it is fair to assume that no medicinal agent has yet been shown to produce a complete cure of the disease, although decided modifications of the morbid process have been frequently reported.—D. L.].

(2) Proneness to invade other organs and tissues than those in which the disease has originated.

(3) Liability to recur after removal by caustics or the surgeon's knife.

(4) The pain to which it commonly gives rise.

(5) The tendency to destroy life.

In general terms, it may be stated that no caustic applications

¹ Read before the Medical Society of the State of New York, February, 1893.

² Clinical Notes on Cancer, by Dr. Herbert Snow, London, 1883.



should be employed in the treatment of cancer except those which may be termed potential escharotics. Anything short of the same prompt and complete eradication of the disease as could be effected by the knife should not be considered, except as some peculiar condition of the patient may indicate a departure from this rule.

The theory of Unna, Duhring and their disciples, that mild applications, such as resorcin, pyrogallol and aristol may bring about a modification of cell structure which will render the disease benign in its tendency, is a plausible one, which has often led to a condition as hopeless as it is inexcusable. Walshe was correct when, as long ago as 1846, he laid down this principle :

" Escharotic agents should be applied in such manner as to produce the requisite effect, if possible, by a single application, otherwise the irritation gives, not necessarily, but commonly, new activity to the disease."

The danger resulting from mild cauterization I have been able to verify in the study of a large number of cases, of which the following history is an illustration :

A man, thirty years of age, suffered some inconvenience from a small fissure of the lower lip in its median line. He was in excellent health, a farmer, with no specific history or hereditary tendency to cancer. A physician made applications of nitrate of silver to the lip about twice a week for nearly a year, when the lip had become enormously thickened and indurated, ulceration had commenced, and the submental and sublingual glands were extensively involved and the seat of constant severe pain. The case had become an inoperable one, and the patient died three months afterward. I have been unable to find a better word to describe such management of the case than malpractice.

The proper place of caustics in the treatment of cancer cannot be easily defined within the limits of a brief paper.

Should they ever be preferred to the knife in an operable case ?

If we take cancer of the female breast as an example, I should without hesitation answer the question in the negative. Some-

times a palliation of symptoms may be temporarily secured by applying a caustic paste to portions of a recurrent disease in the breast, but that is as far as we should ever undertake the use of caustics in these cases. The results of caustic treatment in breast cases are frequently brought to our attention. One lady had an axillary growth "drawn out" by a cancer doctor, and the resulting cicatrix bound the arm so tightly to the trunk that we could not even examine the axilla until she was etherized. All surgeons are now practically agreed, I hope, that the axillary contents should always be removed as well as the tumor of the breast, and caustics cannot safely be used in the axilla. I would not make the exception which Jennings does in favor of caustics in very old and debilitated subjects, for with local anaesthesia not only small tumors, but even those involving the entire breast, may be successfully removed. Mr. Jennings' opinion regarding caustics as a general means of treating tumors of the breast is one of most decided disapproval.¹ He declares that "when caustics are employed to destroy a cancerous growth of any considerable dimensions the results are far inferior to excision or amputation under modern conditions. The bulk of the growth is hardly ever eradicated, and manifest local recurrence occurs ordinarily after the lapse of a few weeks. The caustics are applied and reapplied, and this sad treatment goes on until the patient is relieved by death of a treatment which adds pain to that of the disease which it ordinarily aggravates."

Cancer of the breast, then, heads the list of cases where caustics are not admissible, and with increasing experience I am inclined to include uterine cancer in the same category. Some cases of disease confined to the vaginal portion have, perhaps, been cured by the actual cautery, by chromic acid, terchloride of antimony and the like (caustic pastes should never be employed), but it seems that the melancholy conclusion is to be forced upon us that the only hope of permanent relief is by an exceedingly early diagnosis and then removal of the entire uterus. Whenever even a probable diagnosis can be reached no time should be wasted with caustics.

¹ Cancer and its Complications, London, 1889.

The objection to caustics applies with equal force to their employment in cancer of the tongue, tonsil, eyelids and orbit, or any disease involving a large extent of mucous surface, of which cancer of the rectum is a good example.

All the objections to caustic treatment disappear, however, when we consider cutaneous cancer, which is usually treated more satisfactorily by escharotics than by any other method, and for various reasons. The patients are usually past middle age and often far advanced in years and, as a class, not good subjects for etherization. The antipathy to a surgical operation often leads them to delay treatment until the pre-cancerous stage, as Mr. Jonathan Hutchinson has termed it, has been followed by one of active malignancy. You can always quite readily persuade them to have a plaster applied. The disease can be thoroughly destroyed by caustic applications, which will act sufficiently upon diseased tissue without destroying the healthy skin, so that there is almost an excuse for the fallacy that they exercise a positive power of selection. The resulting cicatrix, when the deep subcutaneous tissues are not involved, is a smooth, white, and in every way healthy one, and far less conspicuous than those remaining after operation. The only cases in which an operation should be preferred to a caustic are those affecting the mucous surface of the lip, the eyelids, and all others which have involved a large surface, in which dangerous poisoning might result from absorption.

The choice of a proper escharotic is of considerable importance. If the disease be a small warty growth the potash and cocaine paste of Mr. Jennings is a good one, the composition of which is as follows:

R.	Hydrochlorate of cocaine,	2.
	Caustic potash,	12.
	Vaseline,	6.

M.

Acetic acid must be at hand to limit its action as soon as desired. Where the disease is that form of epithelioma called rodent ulcer by some, and Jacob's ulcer by other authors, with little or no induration of the borders, a paste composed of lactic acid and

silicic acid, in such proportions as to make a thick paste, is effectual in destroying the diseased surface. It has one advantage over others, in that it is not poisonous, and can be spread over a large surface. It is less active than the others, and requires frequent re-application. I now very seldom employ it. The actual cautery is too painful, and patients are much frightened by the very appearance of the doctor armed with a red-hot instrument.

In 1880, in a paper before this society, I described the method, then new, of applying an arsenical paste as recommended by Dr. Alexander Marsden, surgeon-in-chief of the London Cancer Hospital, and gave histories of twelve cases successfully treated by it. Since that time I have employed the paste in over 100 cases. It is usually satisfactory, and has received the indorsement of many authorities. In some instances the reaction is very great and the pain severe. It is composed of arsenious acid, two parts; mucilage of acacia, one part; mix into a paste too thick to run. It is then applied to only one square inch of the ulcer, covered with cotton to absorb any superfluous paste, and left on until some swelling of an inflammatory character appears around the borders of the plaster, when it is removed, and a line of demarcation usually surrounds the surface cauterized. From one to three days are required to produce the desired effect. Warm flaxseed poultices are then applied until the slough separates (usually about a week) when, if the disease is all removed, healing by granulation is prompt and uninterrupted. The same application is to be repeated, if necessary, until the disease is all destroyed. Marsden insists that no cancer of more than four square inches in extent should be thus treated, and *only one square inch at a time*, and the case very carefully watched. The surgeons of the London Hospital inform me that even Marsden himself now seldom employs the paste. They have substituted an application called Bougard's paste, after the Belgian surgeon who first published the formula in his work on caustics.¹ The author brought it forward as a cure for mammary cancer, but as such, in my judgment, it is open to the same objection as all other

¹ *Etudes sur le Cancer*, Brussels, 1882.

caustics; but in cutaneous and lip cases, and all surface epitheliomata, where an escharotic is admissible, this is decidedly the best we have at present. It is less painful than Marsden's, forms a more dry and friable slough, can be safely applied to a larger surface, and can always be ready for instant use, for in a covered jar it will keep for many months. With both pastes the surfaces must be denuded, if not already ulcerated, by caustic potash, to render the action prompt and effective in the shortest possible time. Bougard's formula is as follows:

R.	Wheat flour,	60	grammes.
	Starch,	60	"
	Arsenic,	1	"
	Cinnabar,	5	"
	Sal ammoniac,	5	"
	Corrosive sublimate,	0.50	centigramme.
	Solution of chloride of zinc at 52° F.,	245	grammes.

The first six substances are separately ground and reduced to fine powder. They are then mixed in a mortar of glass or china, and the solution of chloride of zinc is slowly poured in, while the contents are kept rapidly moved with the pestle so that no lump shall be formed. A thick layer of this is spread on cotton and left in position twenty-four hours, and then managed in every way as Marsden's paste. Few cases require a second application. The ulcer may be dressed with balsam of Peru or aristol ointment of varying strengths, according to the stimulation required, and all exuberant granulations are to be kept in check by the usual methods.

